Advanced Concepts Group

News & Views

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Global Security Through Technology?

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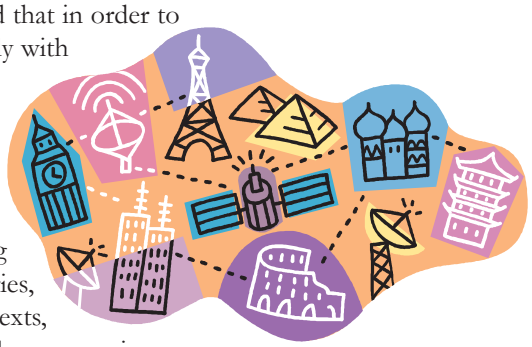
The technology opportunities for improving our military capability in an interconnected world are enormous. With miniature high performance sensors, advanced computing, and global communications we will someday have real-time, detailed information about who is doing what, exactly where, at practically any place on the globe. Combine that degree of awareness with the ability to strike targets rapidly and precisely anywhere in the world and war-fighting will be revolutionized into an instant push-button world without collateral damage.

These offensive capabilities are likely to spawn a new generation of defenses to jam, confuse, or destroy sensors and communication devices and to intercept strike weapons. The offense-defense game may cycle back and forth over time with one having a temporary advantage over the other. A less material offense will be by means of information technology, such as hacking into the heart of strike control systems. This, too, will lead to counter-measures and then offensive adaptations that could go on every second of every day forever. We will also likely see the spread of weapons that the few can use to attack the many, of which biotechnology weapons that could spread incurable infectious disease are the most terrifying.

Clearly the physical and natural sciences and technology will contribute greatly to the art of war over the future decades, but will those capabilities deliver what we want, namely security? There are at least two reasons to think not.

First, precision strike is useless without precision knowledge; and real-time data is not real-time knowledge. In the simpler super-confrontations of the past we needed to know what, when, and where. We spent our intelligence budget counting things from space and stealing secrets using people on the ground. Increasingly, we need to know not just what is happening, but who is doing what and why. We need to understand not just how much of something they have, but also how they intend to use it (think of the aluminum tubes in Iraq or any dual-use item). Thomas Fingar, State Dept. Assistant Secretary for Intelligence and Research, said that in order to deal effectively with terrorists and proliferators we will need "broad and deep understanding of the countries, cultures, contexts, social networks, economic systems, and political arenas in which they spawn, develop, and operate." This is a lot trickier problem than counting things. We will have to unravel mysteries involving the most complex component of



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nature, namely people. We will want to know what makes the "human time bomb" tick, and how can we stop the ticking in the least destructive way with the fewest undesirable consequences.

Second, precision knowledge, precision strike, and precision defense all are useless without precision decisions, and that can't be left to machines. We will need the ability to make the right decision just when it is needed. We don't much understand human decisionmaking, and we certainly don't know how to enable a good decision instantly, every time, amidst confusing and changing information in a complex social environment like the military.

These will be, for us at Sandia, far more daunting tasks than precision awareness, precision strike and precision defense since they involve not just leading the advance of science and technology as we normally practice it, but, if Fingar is correct, also a deep understanding of people. Social science and human-centric technology are not going to be nearly as easy as quantum mechanics, but they will have to be mastered if technology is really going to play a positive role in security.

A challenge worthy of a national lab? Precisely. ■

Prophecy, Bureaucracy, and Technology in the New Intelligence Organization (NIO)

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What is prophecy? Can the NIO have the "gift of prophecy" as Gerry Yonas suggests in *News & Views*, Vol. 7, Issue 1? Can technology facilitate prophecy? What is the role of technology and prophecy in an organization? In this article we consider these questions and suggest some answers.

In common English usage today, "prophecy" is usually understood as the prediction of future events. This is the sense in which Gerry used the word, and it is easy to see how prophecy in this sense would be a useful ability for an intelligence organization. We think, though, that prophecy goes beyond telling the future; that if we consider what prophecy really is, it begins to look both achievable and an essential part of what the NIO should be concerned with.

Etymologically, "prophecy" is derived from two Greek morphemes, *pro* and *phemi*. *Pro* is a prefix with various meanings, including "fore," "in front of," "prior," "superior," and "above." *Phemi* has the meanings of "speak," "say," "show," or "make known." English owes the inclusion of this word in the language, of course, to

Thomas Fingar, Assistant Secretary for Intelligence and Research

Excerpt From Statement Before the Senate Select Committee on Intelligence

http://www.state.gov/s/inr/rls/42445.htm

To place the intelligence we collect in context, to distinguish between what is true and useful and what is not, and to develop strategies to detect and disrupt activities inimical to American interests requires expert analysts and information on a very wide array of critical variables.

Stated another way, it is not possible to identify, anticipate, understand, and disrupt terrorists and proliferators without broad and deep understanding of the countries, cultures, contexts, social networks, economic systems, and political arenas in which they spawn, develop, and operate.

Without broad and deep expertise and information that goes far beyond what we can or should collect through clandestine means, we will not be able to judge accurately the information we collect, and will ultimately be reduced to reliance on lucky guesses and chance discoveries. That isn't good enough. We can and must do better.

the Judaeo-Christian heritage of the English-speaking world: *prophemi* and derivatives occur 195 times in the Greek New Testament, often to refer to the Jewish prophets of old and in pointing to how they had foretold contemporary events. (Perhaps it is a good thing those prophets were not practicing their tradecraft in the state of New York today, as Gerry Yonas points out.) But these prophets were more than just foretellers of the future. It was their job also to interpret the *present*, and make judgments which at times were unpopular and risked the wrath of political leaders. In both foretelling the future and interpreting the present, prophets were "making known" or revealing certain truths not readily apparent to the casual observer, truths which took effort and/or inspiration—at very least, great understanding—to uncover. Furthermore, courage was undoubtedly required on the part of prophets, because their messages, even if true, were not always popular. Like the prophet, the intelligence professional with wisdom may not just be called upon to foretell the future. In the interests of national security, he or she may at times also have to go out on a limb to challenge the prevailing orthodoxy, even if it means unpopularity and incurring personal cost. If the analogy between intelligence and prophecy is valid, then, having the wisdom to understand the present, and being willing to break silence to make this understanding known, are just as important as predicting the future.

So how does this relate to technology? Can technology indeed facilitate prophecy in the senses outlined above? Let me begin my answer to this by telling a short story in which readers may find some analogies to the intelligence community. Before I came to Sandia, I worked in the finance industry from the early 1990s to the early 2000s. The industry I was in is known for being fairly hierarchical and bureaucratic, but no one I knew seriously questioned the idea that this was the most effective form of organization for conducting our business. Work done by staff was reviewed at multiple levels before being finally approved by a partner. Even then, a second partner had to review work as a sort of "devil's advocate" before a report could finally be released. Yet through all the levels of review, multiple, sometimes conflicting, points of view were taken into account, and the final product was, I think, very balanced as a result.

Over the decade or so in which I worked in the industry, I also witnessed a huge change brought on by technology. In the early 1990s, there was little access to technology for most people. I remember having to collect data and write memos using pencil and paper, compile bulky paper files, and so on. I often had the feeling that I'd "seen something somewhere," but couldn't locate it in the file. If it was difficult for me, it must have been all the harder for the reviewers. I also remember the first time I used a laptop on an assignment. Suddenly, I could step back from all the facts and figures and see the big picture; I could manipulate information and find answers easily; and moreover I remember my reviewer saying with some surprise that the job had gone very smoothly. Both he and I had a clearer picture of the truth behind the data and therefore felt much more comfortable about reporting upon it. We still had to make judgment calls, but could now more easily marshal the facts to do so. As years went on, I had the feeling that the developing technology was leading more and more to the point where all the people in the (still bureaucratic, hierarchical) organization essentially had access to the same picture, if they took the trouble to see it. Everyone, therefore, could see the merits or demerits of a particular interpretation of that picture. A particular "prophecy," then, would stand or fall more easily: stand if supported by facts, analysis, and scrutiny; or fall otherwise.

Adopting new technology is often a painful process for an organization, particularly a large organization. However, few will argue that new technology can be a huge success; good technology, as many before have said in different ways, enables people to see the wood from the

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trees—to see the true picture. And good technology empowers, or benefits most, the "prophets" within an organization, whatever level of the bureaucracy they happen to be at. For the intelligence community, the payoff should be a more realistic assessment overall of the threats and challenges facing the nation. ■

"On the other hand, the capabilities must be both sufficiently credible in use and horrific in potential use that the adversary would not consider any likely use."

Preemption Paranoia: Confusing Nuclear Weapons With Countering Terrorism

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In the March/April 2005 Bulletin of the Atomic Scientists *(www.thebulletin.org/article.php?art_ofn=ma05speed)*, Roger Speed and Michael May, two physicists retired from Lawrence Livermore National Laboratory, take on the combination of the doctrine of preemption mixed with a push for new nuclear weapon designs. Their construct has these two separate items joined as a recipe for disaster that makes the proliferation of weapons of mass destruction more likely. Woven throughout their paper are three concepts that I believe are critical to the debates that have raged around current U.S. policy on nuclear weapons. These three concepts are: the use of nuclear weapons, new military capabilities, and new nuclear weapons. These concepts can be interlinked and entwined in such a way that any new work outside of the current stockpile can be characterized as working away from the principles stated in Article 6 of the Non-Proliferation Treaty. Such a linkage is constructed in the Speed/May paper.

Deterrence versus Warfighting

I believe that to properly place the three key concepts of new weapons, new military capabilities, and the use of nuclear weapons, they must be related to the principles of deterrence. Using the fundamentals of deterrence, one must think in terms of capabilities that on the one hand must never be used. If these capabilities are used, then deterrence has failed. On the other hand, the capabilities must be both sufficiently credible in use and horrific in potential use that the adversary would not consider any likely use. Clearly a key to the concept of nuclear deterrence is the suggested use of nuclear weapons.

If nuclear weapons are used, by definition, nuclear deterrence has failed. According to current U.S. nuclear policy, the use of nuclear weapons will be considered "only as a last resort." Clearly, the policy of preemption does not appear to be congruent with the deterrent role of U.S. nuclear weapons. A weapon of "last resort" is not consistent with the preemptive use of military might whether an attack on urban-industrial targets or the direct means of warfighting such as missile silos, airfields, or weapons storage sites. However, a blurry line as to when, where, or how nuclear weapons might be employed is part and parcel of a fully useful deterrent policy. Adversaries should not have a clear idea of the line that separates nuclear use or conventional use or, for that matter, the specific effectiveness of the nuclear weapons that might be used.

New Military Capabilities

Weapons effectiveness should be an issue for an adversary. If the nuclear deterrent is properly developed and maintained, a potential adversary should question their ability to create a sanctuary from our nuclear capabilities. Our nation's deterrent is enhanced when we can make a collection of potential sanctuaries vulnerable to destruction. Underground facilities, military sites placed in urban settings, and mobile threats that cannot be countered by conventional weaponry offer such sanctuaries. One of the key roles of nuclear weapons is to counter the development of places where key capabilities can be maintained during conflict. Denial of shelter to adversaries is a key tenet in the establishment of deterrence and, in so far as possible, nuclear weapon capabilities need to maintain and enhance the refutation of such sanctuaries.

Nuclear weapons can be made to be extremely powerful, but power in and of itself is not necessarily the best vehicle to provide nuclear deterrence. Weapons can be made so powerful that they can be made self-deterring. Speed and May discuss the potential use of nuclear weapons to counter threats from the North Koreans, for example. Extremely powerful nuclear weapons used on the Korean peninsula to counter underground facilities will spread radioactive fallout across the Sea of Japan and on our allies,the Japanese. Hence the use of such weapons can create effects that work in opposition to their potential use. Consequently, the weapons use is blocked by the collateral effects that the weapons cause. It is said that such weapons are self-deterred, weapons too powerful in effects to permit their threatened use. Adversaries that can factor in such constraints will utilize them to their advantage.

If one's entire stockpile has yields and output spectra such that their effects are too powerful to threaten use, then the stockpile is self-deterred and cannot perform its needed deterrence function. It is believed by many that the U.S. stockpile has exactly this feature for many of the potential adversaries that we face today. Programs such as the Advanced Concept Initiative have considered ways to deal with the issue of self-deterrence. These capabilities do not necessarily involve the development of new nuclear warheads or nuclear explosive packages. Typically new military capabilities are generated through changes in the types of packaging and delivery associated with the warheads or NEPs.

New Nuclear Weapons

According to Congressional language, any nuclear weapon that does not use nuclear components from the stockpile of 2002 is a new nuclear weapon. So nuclear warheads, that have been retired or nuclear weapons that have no new military capabilities but do not use nuclear components from the current stockpile, are characterized as new weapons by this Congressional definition. The current stockpile of nuclear warheads was designed in response to the needs of the Cold War. These warheads are expensive and difficult to manufacture, are costly to maintain, and require materials that pose environment, safety, and health challenges.

There are new nuclear warhead designs under consideration that have the potential to overcome these critical issues and reduce the cost of maintaining the nation's nuclear stockpile. Unless one rejects the concept of nuclear deterrence and wishes that nuclear weapons were no longer invented, the idea of a cheaper but still effective deterrent has to appeal to the taxpayer. The implication one

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CONVERGER?

"The Small Power Reactor Association's goal . . . to promote small reactors, typically less than 100 MW. The group envisions various uses for small reactors, ranging from providing electricity in remote areas to mining applications to hydrogen production and water desalination. Small nuclear power reactors also could be installed at military sites where there is a need for assurance and reliability, with little support."

Nucleonics Week, May 12, 2005

gets from the Speed and May article and the Congressional definition is that new nuclear weapons are uniformly bad. However, it is my view that such is not the case, and these issues need to be judged not in a theoretical sense but, in fact, on the merits of each case.

Summary

The development of nuclear weapons and maintaining a viable stockpile for the foreseeable future has an uncertain path. Confusing mixes of policy, capability and applications of the current and future stockpile have the potential to undermine the real utility of a nuclear deterrent. Additionally one of the key aspects of the nation's deterrent is the highly capable and effective workforce that maintains and preserves our stockpile. Papers such as Speed's and May's can have the effect of pushing the nation toward additionally devaluing the importance of the nation's nuclear stockpile, encouraging those that would challenge the resolve of U.S. policymakers, and demoralizing the elite individuals that work to maintain and enhance the nation's nuclear arsenal. ■

> "As long as the U.S. remains committed to maintaining nuclear and conventional superiority it is highly unlikely that any peer competitor will emerge in the near term."

Asymmetric Prevention—The Emerging National Security Priority

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Today, the U.S. does not face an immediate peer level security threat. Yes, Russia—and to a much lesser extent China—have nuclear weapons that at one time were primarily targeted at the U.S., but probably not now. Russia, China, France, Britain, Israel, Pakistan and India all have nuclear weapons for deterrence, as does the U.S. In all cases the U.S. deterrent force is, and will most likely remain, superior.

There is little doubt that conventional U.S. military forces are vastly more technologically superior to any other nation's. While the U.S. may not have the greatest number of soldiers in uniform, technological superiority of U.S. hardware makes up the difference. As long as the U.S. remains committed to maintaining nuclear and conventional superiority it is highly unlikely that any peer competitor will emerge in the near term. And, if China, a resurgent Russia, or a hostile Middle East caliphate were to emerge, the U.S. has the time and the national will to prepare.

The attacks on the U.S. by al Qaeda and the wars in Afghanistan and Iraq demonstrate that contemporary U.S. national security is tied to failed or failing states. The Taliban rule in Afghanistan permitted al Qaeda to organize, plan, finance and train for the attacks of 9/11; years of benign neglect and misunderstandings of Iraq contributed to unfounded fears that forced the U.S. to invade believing that WMD would become available to

Useful Advice During Times of Transition....

- Life is not about how fast you run, or how high you climb, but how well you bounce.
- Forgive your enemies. It messes up their heads.
- You cannot unsay a cruel word.
- Timing has a lot to do with the outcome of a rain dance.

terrorists. Right or wrong, let's assume a valuable lesson has been learned, that is: U.S. national security is dependent on failing states and regions that cannot project direct military threats, but through the complexity of globalization threaten U.S. political, economic, and cultural stability.

Today, immediate U.S. security concerns are indirect asymmetric threats to our sense of economic and personal vulnerabilities. Thomas Friedman, in his book, *The World is Flat: A Brief History of the 21st Century*, suggests that the world has become "flat" due to the information age, outsourcing, and the ability of people to rapidly move from nation to nation; the resultant flatness has ushered in cultural clashes. Military superiority will not lessen the impact of the "clash of civilizations." Instead of military strength, Samuel Huntington (*The Clash of Civilizations*) suggests the world needs to learn to coexist by identifying elements of commonality and building from these mutual needs. How can coexistence through commonality be accomplished in a world dominated by Western influence? Perhaps by using the West's inherent asymmetric advantages that are part of our culture—those things that make the West a leader!

What are the U.S. Asymmetric Advantages?

The U.S. has an asymmetric advantage as a nation of the world's people, a military superpower and an economic leader. Properly applied, this advantage can be used to selectively resolve governance and infrastructure issues in failing states and regions. The ability to prevent and engage in pre-conflict activities in states or regions requiring stabilization and reconstruction (S&R) has emerged as an important element of U.S. national security in the 21st century. However, the U.S. has not sufficiently planned for, nor committed sufficient resources to, assist failing states or regions. Peace-keeping troops and financial aid are typically provided while nominal diplomatic efforts attempt to negotiate a truce between the conflicted parties. Evidence of failure resides in Haiti, Somalia, the Balkans, Central Asia, Sudan, Palestine, Lebanon, Iraq and Afghanistan. "Over the past three decades, no fewer than half of all post-conflict situations have reverted to war within five years of the signing of a peace agreement," U.N. Secretary General Kofi Annan warned as he appealed for sustained "political, moral and financial" support for peacekeeping in Sudan.

A key to successful state and regional stabilization is that the world must be absolutely convinced that the U.S. has the commitment and ability to complete a stabilization and reconstruction mission. In recognition of this need, the U.S. State Department has established the "Office of the Coordinator for Reconstruction and Stabilization" (S/CRS) *(www.state.gov/s/crs)* and the DoD is formally re-thinking its S&R doctrine. The Defense Science Board (DSB) 2004 summer study, authorized by Paul Wolfowitz, concluded that greater emphasis must be placed on preventative actions to deny terrorists sanctuary in failing regions; and that, like it or not, the U.S. has been involved in S&R activities every 18 to 24 months for the past 15 years. The U.S. has recognized that it's time to formally accept this role as an element of a grand plan to provide for U.S. national security. Referring to Thomas Barnett's concepts in *The Pentagon's New Map*, failing or failed states and regions need to be brought into the "functioning core" of the world in order to reduce cultural clashes and enhance economic interdependence.

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How to use the U.S. Asymmetric Advantage!

Commitment and resolve is best assured by establishing dedicated organizations focused on long-term S&R planning and activities. The U.S. must avoid the fate of recent ad hoc S&R planning and implementation activities. To assure a well conceived cost effective coordinated effort, the U.S. needs dedicated, independent, non-partisan, non-profit organizations like the S/CRS to coordinate and organize research, development, planning and implementation

of appropriate socio-economic programs. A component of this effort should be a National S&R Laboratory (NSRL) that focuses on appropriate infrastructure requirements.

The NSRL would focus on solutions to the complex integrated social, cultural, science and engineering needs of failed states and regions so that appropriate S&R programs can be implemented. A dedicated NSRL would assure focused long-term research, development, planning and implementation. But even more importantly, an NSRL would clearly demonstrate U.S. resolve for the S&R mission. Nations and regions targeted for S&R would have no reason to doubt U.S. intentions or sincerity, because the NSRL would provide a long-term, dedicated effort at finding solutions.

U.S. national security has become global security and the NSRL may be a key to reducing the threat from failing regions. The design of the NSRL will be the topic of a future article in the *News & Views*, but if you just can't wait, please contact me, the ACG's resident S&R proponent! ■

> "It can be argued that the one and only purpose of an intelligence product is to inform a decision maker."

The Intel/Decision Maker Quad Chart

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It can be argued that the one and only purpose of an intelligence product is to inform a decision maker. Intel offers only information, attempting to meet the need of the decision maker in as objective and unbiased a manner as possible. It could be that the decision is to take a particular action; or maybe not to take an action; maybe the decision is to delay a decision; or perhaps the product supplies background information or is simply archived for future reference. The job of the intelligence community is to apply the available resources to produce in a timely manner the best possible product that will communicate to the decision maker as much of the relevant information as necessary, accompanied by appropriate analysis (which may include context, history, source information, projections, reliability, accuracy, etc.) or to store the information in a form that can be readily and accurately "mined" at a future date. Recognizing that intel data is almost always challenged with ambiguity and uncertainty, a Cognition and Uncertainty in Decision-making (CUD) team was formed within the ACG to attempt to frame this problem area. As we carry out these discussions, we find that we often bounce around in some ill-defined type of intelligence/decision maker space, resorting to examples and vignettes to clarify our points. In this article, I will lay out a proposed framework to think about the intelligence product/decision maker working space and how it affects the final intelligence product in its completeness, accuracy, and presentation.

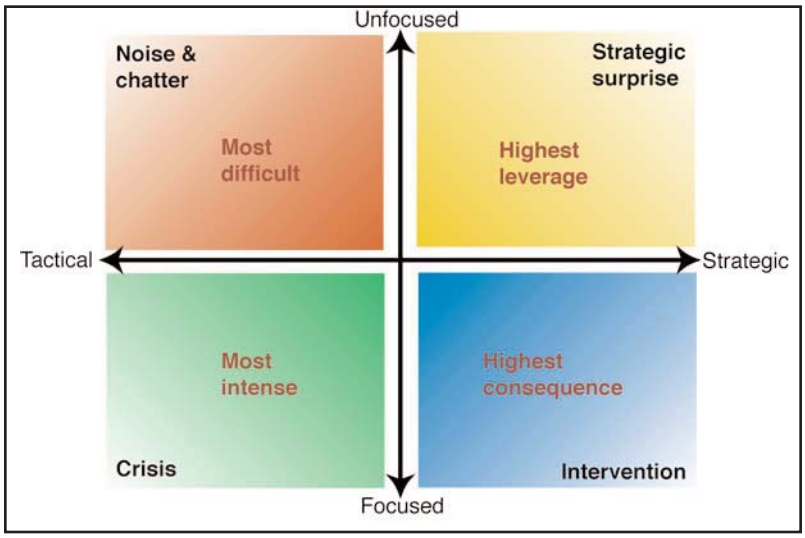
As a starting point, one could create an axis with **strategic** decisions at one end and **tactical** decisions at the other. This separation is easy to resolve at the extremes—strategic decisions are about selecting or judging the appropriateness of a goal, or, for war fighting, about decisions that destroy an adversary's capability to conduct military operations. Tactical decisions involve methods or courses of action to achieve an immediate or short term goal, or in military terms, to support operations. There is, of course, a continuous spectrum in-between, but generally one could see how a decision would fit more on one side than the other. In general, the right hand side is more deliberative; the left side more time critical and responsive. The right side needs more coverage to find the unexpected; the left side sees lots of noise that reduces the signal-to-noise ratio. The right side is more about a deep understanding of history and culture and adversary intentions; the left more about MOs, preferences, reconnaissance, mapping, adversary actions. The right is more about the world environment; the left more about local situational awareness. The right serves more of the policymakers for

foreign, national security, and national economic decision-making, the left serves the fighters, the guys with guns. The right worries more about disruptions to trends, the left more about deception and below-the-radar-actions.

The choice of a vertical axis was selected by considering the approach the analyst would take to the data being considered, namely a **focused** view versus an **unfocused** or **encompassing** view. An unfocused search is when you are in the discovery mode. You're not sure what you are looking for, you are just looking for anything out of the ordinary. A focused search is when you have a starting point. You have a specific piece of evidence or clue that you are investigating to see where it leads. Hence, the top is more about analysis of reports; the bottom more about the need to see raw data. The top is about the discovery of suspicious connections; the bottom more about the need to investigate in excruciating detail every connection to a piece of data. The top is more about "what-if" questions; the bottom more about "finding every connection to …" The top usually has no working hypothesis; the bottom often works from a hypothesis. In intelligence jargon, the top is more about "mysteries;" the bottom more about solving "puzzles." The top is generally more concept driven, while the bottom is more data driven. The top is more about discovery and browsing; the bottom more about investigating and searching.

If we now take a look at the four quadrants we've generated, we can see how intelligence activities and decision making often fit into one of these areas. Starting with the upper right quadrant (the strategic-unfocused) which we refer to as "strategic surprise," we see those activities that support the generation of long range reports like the National Intelligence Estimates produced by the National Intelligence Council. These long range estimates attempt to identify future trends of national importance and avoid strategic surprises. This quadrant is probably the one with the highest leverage as far as decision makers are concerned. Accurate long range warning can give time for early actions to either influence or prepare for events. This area is primarily covered by the NIC, State Department, and various think tanks.

The lower right quadrant, the strategic-focused, is referred to as the "intervention" quadrant. In this quadrant, the decision-maker is preparing to take action. A potential threat has been identified and requires in-depth data collection and analysis to confirm the nature of the threat and plan for action. This is the quadrant of *highest consequence* as it will potentially lead to actions such as going to war or severe sanctions. Mistakes of any type in this quadrant can be very costly. This quadrant is about identifying an eminent threat and "draining the swamp" to remove its capability to cause harm. This is the quadrant of preemptive war. This area is the primarily covered by the CIA, the DIA, and the DOE's WMD analysis.



The upper left quadrant is the tactical-unfocused region referred to as "noise and chatter." This is the quadrant where the analyst is trying to find the undetected, unknown, but unfolding scenarios. It is the quadrant that is the *most difficult* since the unknown meets the time critical. Staying alert through the drone of daily life with its false alarms and unexpected occurrences is a major challenge. It includes activities such as facilities protection where you have to look for any signs of threats in the daily flow of operations. This quadrant is about detecting surprise attacks as they unfold in their

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early stages. This is the primary area of concern for the counter-terrorism centers and the facilities/force protection units.

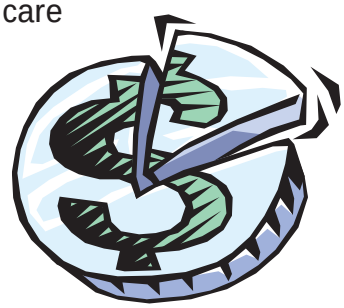
The lower left quadrant is the *crisis* area. In this area, an unfolding threat has been discovered. If the plan can be unraveled quickly, then interdiction is possible. Time is critical and hence this area is the *most intense*. The ability to quickly mine data and redirect collection resources is critical. Alternate future scenarios must be quickly generated, evaluated, and discarded when disproved. On a daily basis, leads must be quickly evaluated and either discarded, marked for further analysis, or archived for future reference. This is the area where local law enforcement and local decision makers will play a major role.

This intel/decision maker space is very dynamic. A person or an organization will not spend all or maybe even most of their time working in a single quadrant. When a suspicious threat is discovered, a person/team might immediately move to the focused mode to investigate. On the battlefield, an analyst working on tactical intel may discover something of strategic importance and move to the right hand side. Or a team working on WMDs in country X may find evidence of an unfolding plot and move immediately into the crisis mode. The real value is in thinking about the different roles, skills, tools, and thought processes involved in each quadrant and recognizing that the requirements on both the intelligence collector and analysts are different in each quadrant. Likewise, the requirements on the intelligence product to meet the needs of the decision-makers will be different. Designing an intel system that works effectively and seamlessly across these areas could potentially improve our ability not only to make good strategic decisions but successfully discover and interdict tactical events. ■

Health Care Costs

The United States currently spends $6,420 per person for health care. This is more than twice the average for other rich countries. Remarkably, the U.S. has very little to show for this spending—virtually every other country has better health care outcomes, as measured by life expectancy, infant mortality rates, and other objective measures.

The high costs and poor outcomes seem to stem from inefficiencies that are unique to the U.S. health care system. As long as politicians are unwilling to address these inefficiencies, the health care system will pose an ever greater burden on living standards for current and future generations.



D. Baker and D. Rosnick, "The Burden of Social Security Taxes and the Burden of Excessive Health Care Costs," *CEPR Issue Brief*, March 24, 2005